REMARKS

Claims 3-5, 8-16, and 23-39 are all the claims presently pending in the application. New claims 30-39 are added. No new matter has been added.

Applicant acknowledges and appreciates that claims 11-16 and 23-27 are allowed. For the reasons set forth below, however, Applicant respectfully submits that all of the pending claims are allowable over the prior art of record.

Claims 3 and 8 stand rejected under 35 U.S.C. 102(e) as being anticipated by Gelman et al. (US 6,493,348) (hereinafter Gelman). **Claims 5 and 10** stand rejected under 35 U.S.C. 102(e) as being anticipated by Johnson (US 6,765,910). **Claims 4 and 9** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gelman in view of Johnson.

These rejections respectfully are traversed.

I. THE CLAIMED INVENTION

Claim 3 and 8 similarly recite a demultiplexing method and apparatus for receiving a multiplexed signal. The multiplexed signal is obtained by multiplexing a plurality of communication signals from a multiplexed signal transmitting section, demultiplexing the multiplexed signal into communication signals, and transmitting the demultiplexed communication signals to a communication signal receiving section. The method of receiving a multiplexed signal includes adding an identification address to each of the plurality of communication signals. The identification address is preassigned to a predetermined signal identifying section, through which a communication signal passes in a multiplexing system including the multiplexed signal transmitting section and the communication signal receiving section. The method of receiving a multiplexed signal also includes outputting each of the communication signals, extracting the identification address

from each of the output signals, and demultiplexing the multiplexed signal for each of the communication signals on the basis of the extracted identification address.

Claims 5 and 10 similarly recite a demultiplexing method and apparatus for demultiplexing a multiplexed signal obtained by multiplexing a plurality of packets into packets. The method includes extracting an IP address from each packet in the received multiplexed signal for each of the plurality of packets, the IP being preassigned to a predetermined signal identifying section through which a communication signal passes, and demultiplexing the multiplexed signal into PPP packets on the basis of the extracted IP addresses.

Claim 28 recites a demultiplexing method of receiving a multiplexed signal. The multiplexed signal is obtained by multiplexing a plurality of communication signals from a multiplexed signal transmitting section, demultiplexing the multiplexed signal into communication signals, and transmitting the demultiplexed communication signals to a communication signal receiving section. The method of receiving a multiplexed signal includes adding an identification address to each of the plurality of communication signals. The identification address is preassigned to a predetermined signal identifying section, through which a communication signal passes in a multiplexing system including the multiplexed signal transmitting section and the communication signal receiving section. The method of receiving a multiplexed signal also includes outputting each of the communication signals, extracting the identification address from each of the output signals, and demultiplexing the multiplexed signal for each of the communication signals on the basis of the extracted identification address. The communication signal is a PPP packet in an Ethernet frame packet or an IEEE 802.3 frame packet.

A conventional multiplex communication apparatus, however, requires a discrimination apparatus for an Asynchronous Transfer Mode function that must be installed

at an entrance to a backbone network. In addition, for new subscribers, a new discrimination apparatus must be installed for each new subscriber, creating additional cost and complexity.

The present invention, however, provides, "an identification address, for each of the communication signals, which is added to each of the communication signals in the multiplexed signal received from the multiplex communication path and preassigned to a predetermined signal identifying section through which a communication signal passes in a demultiplexing section including said multiplexed signal transmitting section and said communication signal receiving section," as recited in claim 1.These features provide a simpler arrangement for PPP processing. (*See* Application, Page 7, Line 17 to Page 8, Line 5)

As the number of subscribers who access the Internet increases, an apparatus for performing Point-to-Point Protocol (PPP) processing connection of the subscribers to the backbone network of the Internet must be added. Such an apparatus may be installed in a place as near to the subscribers as possible to avoid complication of the PPP, complication of the system, and complication of a management system for the system. *See* the Application, Page 6, Line 7 to Page 7, Line 4.

II. THE PRIOR ART REJECTIONS

a. Claims 3 and 8

On page 2 of the Office Action, the Examiner rejects claims 3 and 8 under 35 U.S.C. 102(e) as being anticipated by Gelman. Applicant submits, however, that there are elements of the claimed invention which are not taught by Gelman

To anticipate a claim, a reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of*

California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Claims 3 and 8 similarly recite, among other things, "receiving a multiplexed signal obtained by multiplexing a plurality of communication signals from a multiplexed signal transmitting section, demultiplexing the multiplexed signal into communication signals, and transmitting the demultiplexed communication signals to a communication signal receiving section." That is, a multiplexed signal transmitting section sends a plurality of communication signals to a multiplexor. These multiplexed signals are demultiplexed and the demultiplexed signals are transmitted to a communication signal receiving section.

Gelman, on the other hand, is directed to a network in which all the nodes therein communicate via the same protocol, each node having an IP address. Information is transmitted conventionally, via a packet with an address header and a payload. However, Gelman does not disclose or suggest "receiving a multiplexed signal obtained by multiplexing a plurality of communication signals from a multiplexed signal transmitting section, demultiplexing the multiplexed signal into communication signals, and transmitting the demultiplexed communication signals to a communication signal receiving section," as recited, for example, in claim 3 and as similarly recited in claim 8. That is, Gelman discloses only a conventional internetwork communication arrangement and does not even disclose overcoming the conventional difficulties of providing a PPP performing apparatus near the Internet subscriber.

In fact, the Examiner relies on the prior art section of Gelman which describes the operation of the system with respect to Figure 3, illustrating that a bottleneck occurs at the IP edge routers because they perform the processing on all the packets. *See* Gelman, Col. 4, Lines 47-59. In fact, ATM switch 22 is required to receive several passes of data packets. *See* Gelman, Col. 4, Lines 22-25. That is, Gelman does not provide any exemplary benefits of the claimed invention.

Because Gelman does not disclose or suggest every element as claimed in independent claims 3 and 8, claims 3 and 8 are improperly rejected in light of Gelman. Accordingly, Applicant submits that claims 3 and 8 are in condition for allowance.

With respect to claims 4 and 9 which depend from independent claims 3 and 8, respectively, each of these claims contains all the limitations contained within independent claims 3 and 8 are therefore also in condition for allowance.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

b. Claims 5 and 10

On page 3 of the Office Action, the Examiner alleges that Johnson discloses the claimed invention of claims 5 and 10. Applicant submits, however, there are features recited in the rejected claims that are neither disclosed nor suggested by Johnson.

Johnson, on the other hand, is directed to a multiplex communication system to communicate with customers. Johnson discloses that switch router 30 separates packets out of a PPP stream when it detects packets that are intended for the server. That is, in Johnson, a router is required to search each packet to determine if the packet is intended for the server of customer. Accordingly, Applicant maintains the traversal of this rejection as Johnson fails to disclose or suggest every element as recited in these independent claims.

Therefore, Johnson provides no teaching of "extracting an IP address from each packet in the received multiplexed signal for each of the plurality of packets, the IP address being preassigned to a predetermined signal identifying section through which a communication signal passes," as recited in claim 5 because the PPP addresses because "these routing decisions are made using addressing information (e.g., IP addresses) embedded in the packet headers." *See* Johnson, Col. 8, Lines 37 to 40.

Because Johnson does not disclose or suggest every element as claimed in independent claims 5 and 10, claims 5 and 10 are improperly rejected in light of Johnson. Accordingly, Applicant submits that claims 5 and 10 are in condition for allowance.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

c. Claims 29 and 30

On page 3 of the Office Action, the Examiner alleges that a combination of Gelman and Johnson would disclose the claimed invention of claims 4, 9, 28, and 29. Applicant submits, however, there are features recited in the rejected claims that are taught or suggested by either of Gelman and Johnson, either alone or together.

To establish a prima facie case of obviousness, several basic criteria must be met. For example, the prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 706.02(j). In addition, as stated in *KSR,* there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (*In re Kahn*, 441

F.3d 977, 988 (CA Fed. 2006) cited with approval in *KSR Int'l. v. Teleflex, Inc.*, 127 S.Ct. 1727 (2007)).

Independent claim 28 recites, among other things, "adding, to each of the plurality of communication signals, an identification address preassigned to a predetermined signal identifying section through which a communication signal passes in a multiplexing system, including the multiplexed signal transmitting section and the communication signal receiving section, and outputting each of the communication signals," and "the communication signal comprises a PPP packet in an Ethernet frame packet or an IEEE 802.3 frame packet."

Johnson, on the other hand, is directed to a multiplex communication system to communicate with customers. Johnson discloses that switch router 30 separates packets out of a PPP stream when it detects packets that are intended for the server. That is, in Johnson, a router is required to search each packet to determine if the packet is intended for the server of customer.

Therefore, Johnson provides no teaching of "extracting an IP address from each packet in the received multiplexed signal for each of the plurality of packets, the IP address being preassigned to a predetermined signal identifying section through which a communication signal passes," as recited in claim 5 because the PPP addresses because "these routing decisions are made using addressing information (e.g., IP addresses) embedded in the packet headers." *See* Johnson, Col. 8, Lines 37 to 40.

Because Gelman and Johnson do not teach or suggest every element as claimed in independent claim 28, claim 28 is improperly rejected in light of Gelman and Johnson. Accordingly, Applicant submits that claim 28 is in condition for allowance.

With respect to claim 29 which depends from independent claims 28, this claim contains all the limitations contained within independent claim 28 and is therefore also in condition for allowance.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

III. NEW CLAIMS

Applicant has added new claims 30-39 to claim additional features of the invention and to provide varied protection for the claimed invention. These claims are independently patentable because of the novel features recited therein.

New claim 30 recites, *inter alia*, an access network system for performing PPP processing by using a medium access control (MAC) layer, including a computer, a subscriber apparatus connected to the computer , the subscriber apparatus adds a PPP (Point-to-Point Protocol) header and a frame header of a MAC to an IP packet transmitted from the computer to form a frame packet, a subscriber multiplexing/demultiplexing apparatus connected to the subscriber apparatus, and an access gateway connected to the subscriber multiplexing/demultiplexing apparatus, said access gateway being associated with a backbone network. The frame header includes a MAC address, the MAC address including a source identification address comprising an identification address of a predetermined identification section through which a communication signal passes in a multiplex system at which a signal is output from the subscriber apparatus and a predetermined destination identification address comprising an identification address of a signal identification section through which a communication signal passes in the multiplex system to which a signal is input the subscriber multiplexing/demultiplexing apparatus.

Applicant respectfully submits that new claims 30-39 present no new matter and are supported in the specification.

Applicant submits that new claims 30-39 are patentable over the cited references at least for analogous reasons to those set forth above with respect to claims 3-5, 8-16, and 23-29.

IV. CONCLUSION

In view of the foregoing, Applicant submits that claims 3-5, 8-16, and 23-39, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 6/18/9

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